
Monitoring and Reporting Requirements in NPDES Permits



Today's Speakers

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Purpose of Monitoring

- Determine compliance with permit conditions
- Establish a basis for enforcement actions



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Approaches to Monitoring

- **Self-monitoring**
 - permittee performs sampling and analysis
- **Compliance monitoring**
 - permitting authority monitors effluent (during a compliance inspection)



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Types of Monitoring

- Influent Monitoring
- Effluent Monitoring
- Source Water Monitoring
- Internal Monitoring
- Ambient Monitoring
- Other Monitoring



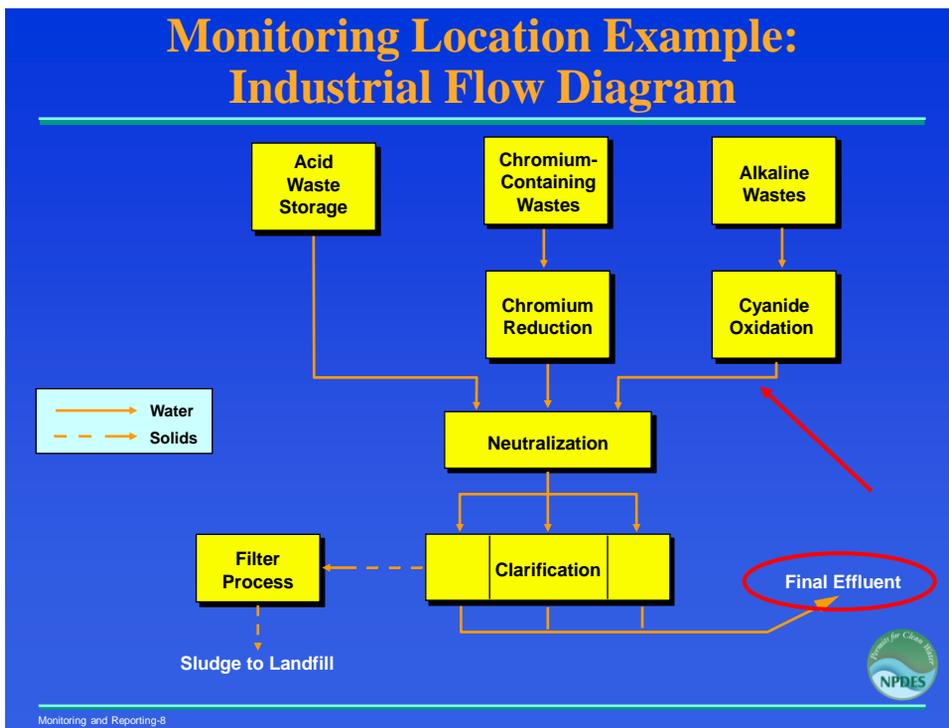
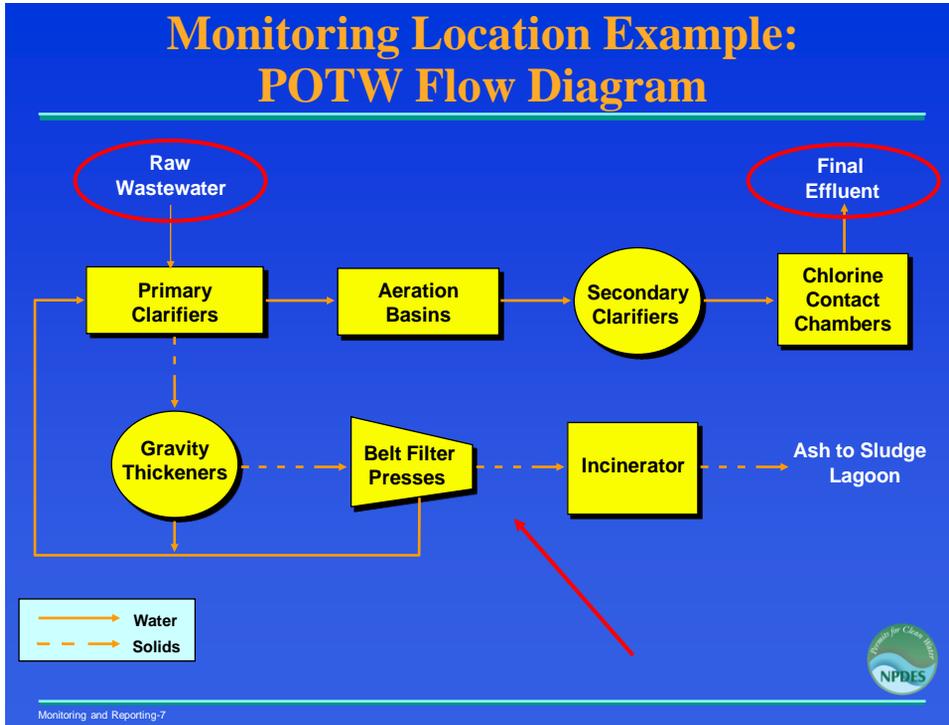
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Self Monitoring Considerations

Location
Frequency
Type of Sample



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Some Considerations for Monitoring Location

- Is it on the facility's property?
- Is it accessible?
- Will the results be representative of the targeted wastestream?
- Are internal monitoring points needed?



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Monitoring Frequency Considerations

- **Federal requirements**
 - case-by-case...dependent on the nature and effect of the discharge
 - annual minimum for all regulated pollutants
 - waivers available for certain effluent guideline-based pollutants [40 CFR 122.44(a)(2)]
- **Permitting authority requirements**
 - consult policy and procedures



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Frequency Considerations (continued)

- Size and design of facility
- Type of treatment
- Location of discharge
- Frequency of discharge (batch, continuous)
- Compliance history
- Nature of pollutants



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Types of Samples

- **Sample types**
 - Grab
 - Composite
 - Continuous
- **Grab:** sample taken from a wastestream on a one-time basis without consideration of the flow rate of the wastestream and without consideration of time
 - must be used to monitor certain parameters (e.g., pH [unless continuous], volatile organics)
 - used for monitoring batch discharges



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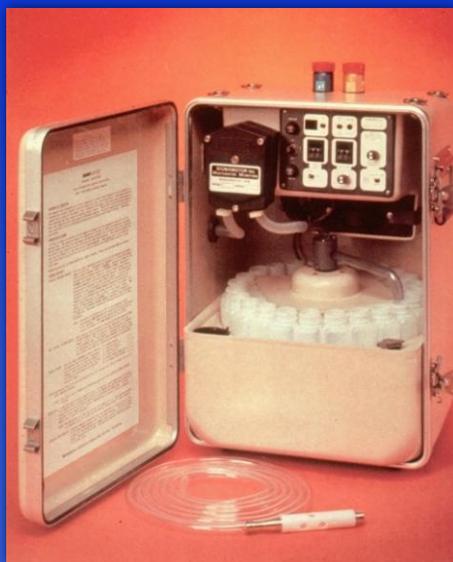
Types of Samples (continued)

- **Composite:** sample composed of two or more discrete aliquots
 - accounts for variability in pollutant concentration and discharge flow rate
 - aggregate sample reflects average water quality over the sample period
 - may be sequential discrete samples or a single combined sample



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Sequential Discrete Composite Sampler



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Single Combined Composite Sampler



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Types of Samples (continued)

- Composite sample is defined by the time interval between aliquots and the volume of each aliquot (t , V)

- Time Proportional (t_c , V_c): interval time and sample volume are constant

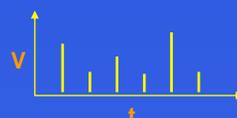


- Flow Proportional: interval time or sample volume may vary

- constant volume (t_v , V_c)



- constant time (t_c , V_v)



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Types of Samples (continued)



- **Continuous:** automated collection and analysis of a parameter in a discharge
 - used for pH, temperature, total residual chlorine, and flow
 - 40 CFR 401.17 allows excursions for pH when sampling continuously



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Analytical Methods

- 40 CFR Part 136
- Alternative methods:
 - www.epa.gov/waterscience/methods
- National Environmental Methods Index (NEMI):
 - www.nemi.gov



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Analytical Considerations in Establishing Monitoring Requirements

- **Method Detection Limit (MDL):** the minimum concentration of analyte that can be measured and reported with 99% confidence that the analyte concentration is greater than zero
- **Minimum Level (ML):** concentration at which the entire analytical system gives a recognizable signal and acceptable calibration point



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Reporting Monitoring Results

- **What is reported?**
 - data required in permit
 - data for pollutants monitored more frequently than required using approved methods
- **When is information reported?**
 - at least once per year for limited pollutants
- **Who is responsible for reporting?**
 - the permittee
- **What format is used for reporting?**
 - Discharge Monitoring Reports
 - supplemental reporting forms from the permitting authority



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Discharge Monitoring Reports (DMRs)

- **Discharge Monitoring Reports must be used to report self-monitoring data**
 - required at 40 CFR 122.41(l)(4)(i)
 - requires reporting of maximum and average measured quantities
 - state, territory, or tribe with NPDES authority may alter format or require additional reporting



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Record Keeping

- **Records of monitoring must be kept:**
 - 3 years for wastewater
 - 5 years for sewage sludge use and disposal activities and CAFOs
- **Monitoring records include:**
 - date, place, and time of sampling
 - individual performing sampling
 - date of analysis
 - individual performing analysis
 - analytical methods used
 - analytical results
- **Permit should specify where records should be located**



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Other Requirements

- **Permitting authorities sometimes include other requirements related to monitoring, reporting, and recordkeeping with routine monitoring requirements or as special conditions**
 - special studies
 - visual monitoring of treatment systems
 - equipment inspection records
 - postings or public notice



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Documentation

- **Document in the fact sheet or statement of basis:**
 - Appropriate regulatory citations for monitoring and reporting requirements
 - Basis for decisions on monitoring frequency, location, and sample type for new monitoring
 - Rationale for increases or decreases in monitoring frequency or other changes from the previous permit
 - Purpose of special studies or other requirements



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Feedback and Other Presentations

Questions or comments?

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